

ADVANCES IN GEOGRAPHIC INFORMATION SCIENCE

Basudeb Bhatta

Analysis of Urban Growth and Sprawl from Remote Sensing Data

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Chandrani and Bagmi

Preface

Urban growth and sprawl is a pertinent topic for analysis and assessment towards the sustainable development of a city. Environmental impacts of urban growth and extent of urban problems have been growing in complexity and relevance, generating strong imbalances between the city and its hinterland. The need to address this complexity in assessing and monitoring the urban planning and management processes and practices is strongly felt in the recent years.

Determining the rate of urban growth and urban spatial configuration, from remote sensing data, is a prevalent approach in contemporary urban geographic studies. Maps of growth and a classified urban structure derived from remotely sensed data can assist planners to visualise the trajectories of their cities, their underlying systems, functions, and structures. There are currently a number of applications of analytical methods and models available to cities by using the remote sensing data and geographic information system (GIS) techniques, in specific—for mapping, monitoring, measuring, analysing, and modelling.

The international participants are increasingly engaged with the urgent environmental tasks for the sustainable development of their urban regions, the planning challenges faced by the local authorities, and the application of remote sensing data and GIS techniques in the analysis of urban growth to meet these challenges. However, despite the promise of new and fast-developing remote sensing technologies, a gap exists between the research-focused results offered by the urban remote sensing community and the application of these data and methods/models by the governments of urban regions. There is no end of interesting scientific questions to ask about cities and their growth, but sometimes these questions do not match the operational problems and concerns of a given city. This necessitates more focused research and debate in the areas covered by this title.

Kolkata, India

B. Bhatta

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I am grateful to all the authors of the numerous books and research publications mentioned in the list of references of this book. I have consulted these literatures, picked up the relevant materials, synthesised them and put them in an organised manner with simple language in this book. I express my gratitude to the teachers, researchers and organisations who have contributed a lot to the quality and information content of this book.

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I would like to express my gratitude to my parents who have been a perennial source of inspiration and hope for me. I also want to thank my wife *Chandrani*, for her understanding and full support, while I worked on this book. My little daughter, *Bagmi*, deserves a pat for bearing with me during this rigorous exercise.

B. Bhatta

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